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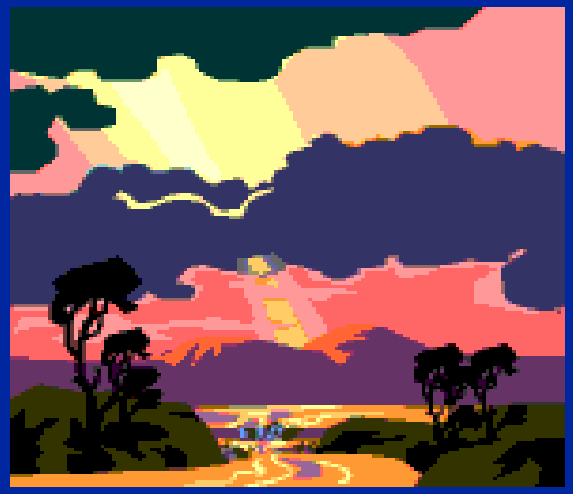

Terry L. Walker

DOD 2007 Environmental Monitoring and Data Quality Workshop

28 March 2007

METHOD SW8330B and MULTI-INCREMENT SAMPLING: PRESENTING THE RISK PERSPECTIVE

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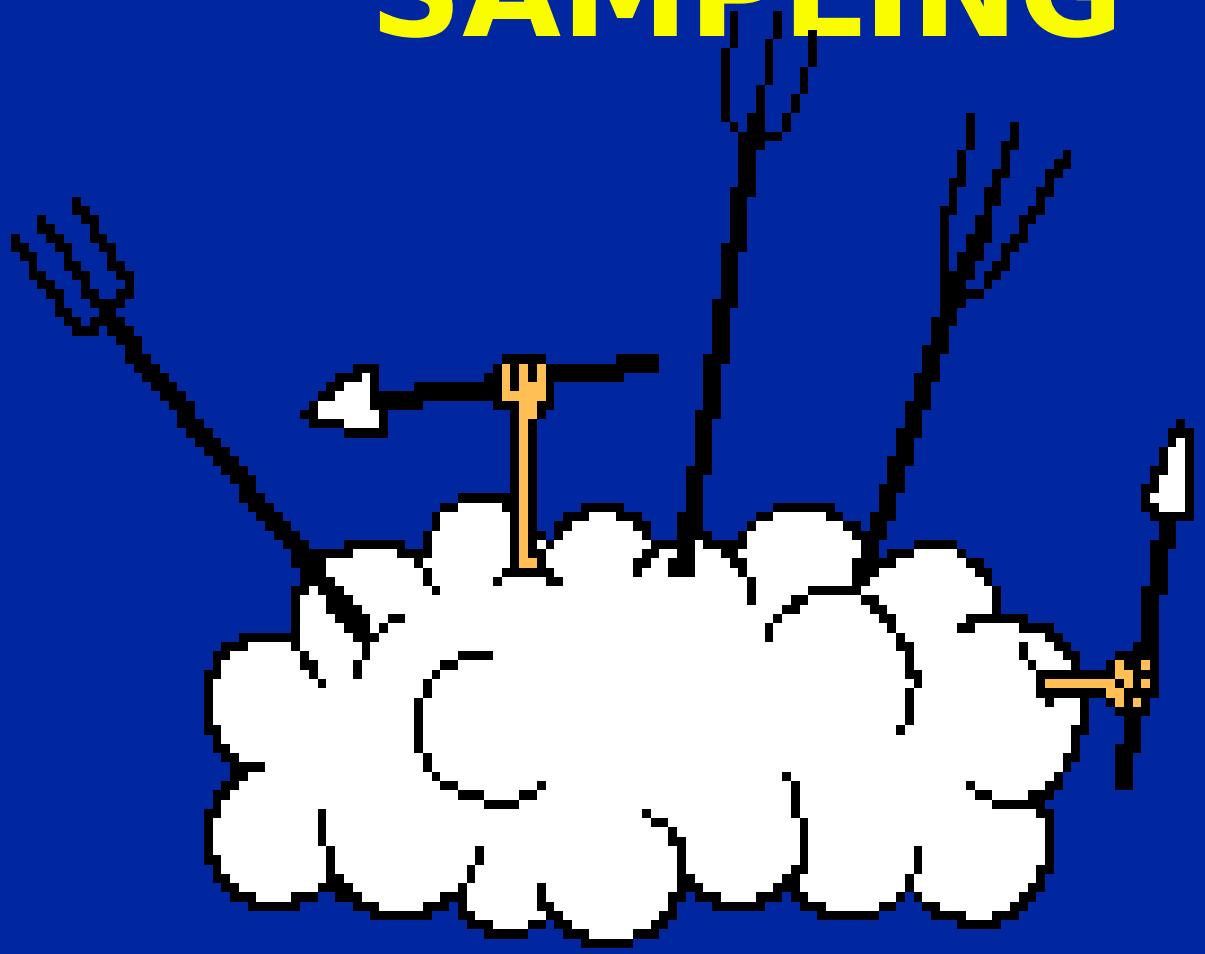
MULTI-INCREMENT SAMPLING



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MI SAMPLING

- 7-Sample Wheel Approach
  - Six grabs around a 4’ dia. circle
  - One grab in center
- TR-02-1 Approach
  - 30+ grabs for 1m x 1m plot
  - 50+ grabs for 3m and 10m square plots
- FATE Explosives Module Approach
  - 10+ grabs for 1m x 1m plot
  - 30+ grabs for 3m and 10m square plots

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MI SAMPLING

- Decision unit - exposure area (human receptors) or home range (ecological receptors)
- Systematic-random sampling design
- Approximates the AVERAGE concentration
- MAY eliminate the need for statistics (i.e., 95% UCL)

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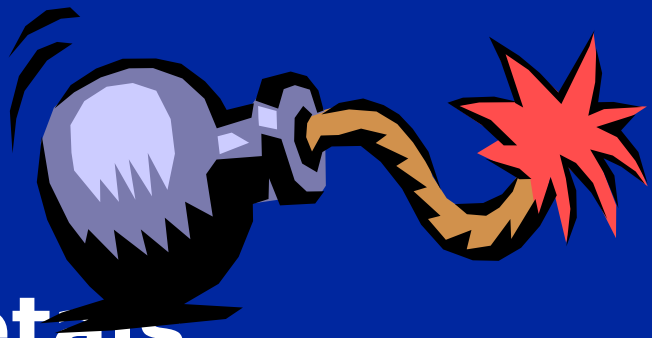
MI SAMPLING



- Derived for energetics
  - Applicable to metals?
- Grinding - increases metals concentrations
  - Due to bowl and puck?
  - Due to additional exposed surface area?
  - Representative of actual exposures?
  - Can duplicate for background samples

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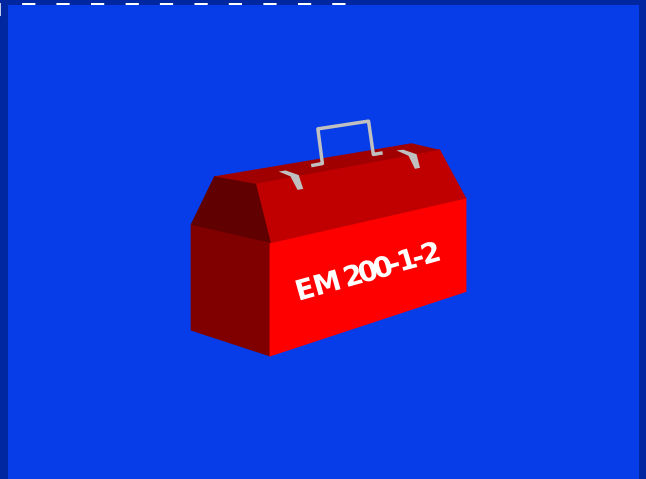
MI SAMPLING

- Developed for surface soil sampling
  - Applicable to subsurface soil sampling?
- May not be appropriate for all areas or all sites
- Systematic Planning Process!!!!!!!!!!!!!



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MI GUIDANCE

Alaska Dept of Environmental Conservation, Contaminated Sites Program

Guidance on Multi-Increment Soil Sampling

Draft, March 2007

- **Initially for POL only**
- **Characterization of surface release (i.e., AST)**
- **Confirmation sampling**

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ALASKA GUIDANCE

- "MI is meant to supplement, not replace, existing department approved approaches or statistical approaches"
- "…DEC intends to address MI sampling for metals in the next edition of this guidance"

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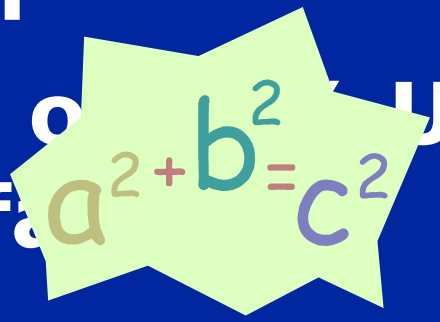
ALASKA GUIDANCE

- Decision unit is the source area
- Requires triplicate samples
- Calculation of RSD (must be < 30%), assumes normal data distribution
- Calculation o UCL (student t fa



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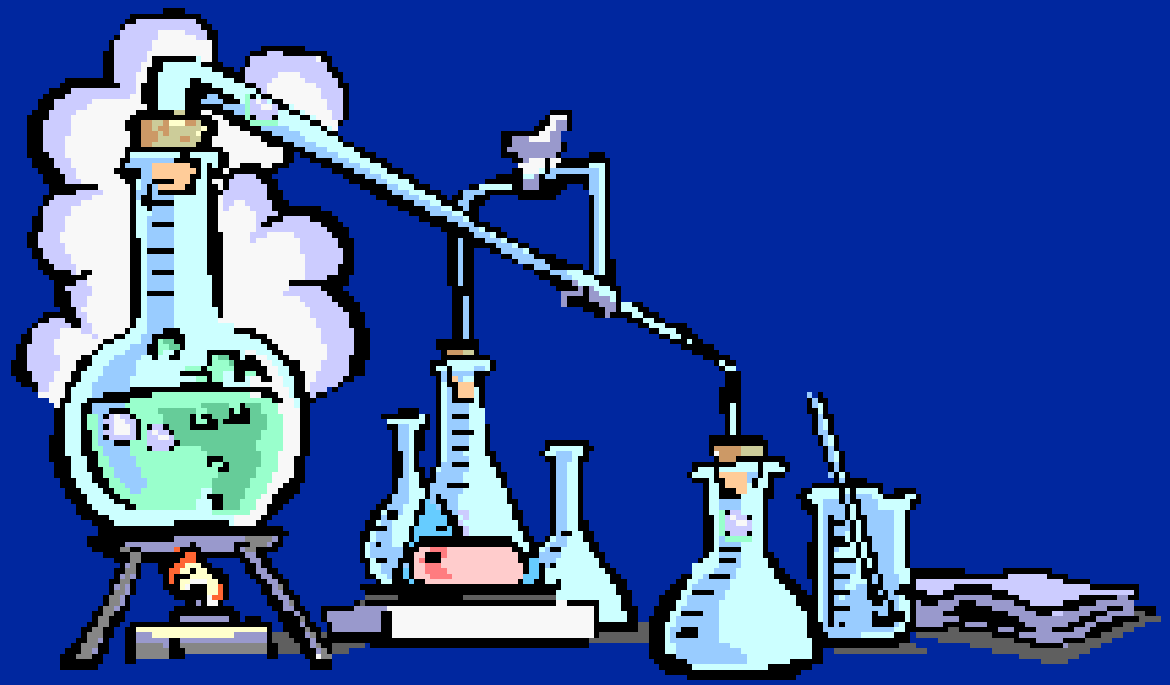
ANALYTICAL METHOD SW8330B



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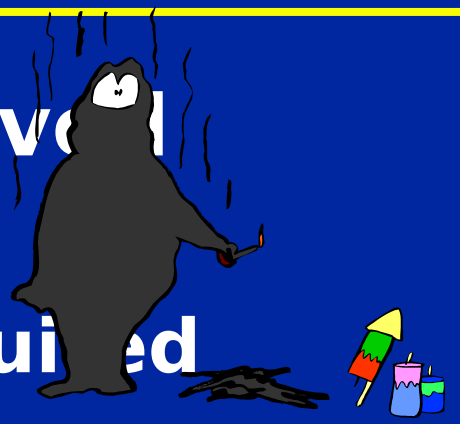
APPENDIX TO SW8330B



- Particles >2 mm are removed
  - Safety considerations
  - Available for analysis if required
- Vegetation included (normally removed)
  - Analytical interferences?
- Samples are taken at 0-2”
  - Normally 0-6” or 0-12”
  - Introduces high bias for EPC

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APPENDIX TO SW8330B

- Specifies MI Sampling and grinding
- Triplicate samples recommended (statistics?)
- May not be appropriate for all areas or all sites
- Systematic Planning Process!!!!!!!!!!!!

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METHOD SW8330B and MIS: PRESENTING THE RISK PERSPECTIVE

QUESTIONS?

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